In the Claims

Changes to the claims are reflected below.

1-18. Cancelled

19. (Previously Presented) A CPP spin-valve element formed on a substrate comprising:

a free layer structure including at least one ferromagnetic layer;

a pinned layer structure including at least one ferromagnetic layer, the free layer is magnetically softer than the pinned layer; and

a thin non-magnetic current confining (CC)-layer structure configured to separate the free and pinned layers, to prevent a substantial magnetic coupling between said free and pinned layer structures, and to allow an electric current to go through the confined current paths;

wherein the width of at least one of the confined current paths of said CC-layer structure is greater than $t^{3/2}$ where t is the thickness of at least one of said free layer structure and said pinned layer measured in nano-meters.

20. (Previously Presented) The CPP spin-valve element of claim 19, wherein the width of the confined current paths of said CC-layer structure is greater than two times $t^{3/2}$ where t is the thickness of at least one of said free layer structure and pinned layer measured in nano-meters.

21. (Previously Presented) A CPP spin-valve element formed on a substrate comprising:

a free layer structure including at least one ferromagnetic layer;

a pinned layer structure including at least one ferromagnetic layer, the free layer is magnetically softer than the pinned layer; and

a first thin non-magnetic current confining (CC)-layer structure configured to separate the free and pinned layers, to prevent a substantial magnetic coupling between said free and pinned layer structures, and to allow an electric current to go through the confined current paths; and

a second CC-layer structure placed across at least one of the free layer and the pinned layer;

wherein conducting parts of said CC-layers are located in a cascade manner and a majority of the nearest inner edge to edge distances of a projection of the conducting parts of the CC-layers forming the current paths through said free layer structure or said pinned layer onto the layer plane are made greater than the thickness of at least one of said free layer and said pinned layer.

22. (Cancelled)

23. (Previously Presented) The CPP spin-valve element of claim 21, wherein the width of the confined current paths of said first and second CC-layer structures is greater than $t^{3/2}$ where t is the thickness of at least one of said free layer structure and said pinned layer measured in nano-meters.

24. (Previously Presented) The CPP spin-valve element of claim 21, wherein the width of the confined current paths of said first and second CC-layer structures is greater than two times $t^{3/2}$ where t is the thickness of at least one of said free layer structure and said pinned layer measured in nano-meters.

25. (Cancelled)

26. (Previously Presented) The CPP spin-valve element of claim 21, wherein the length of at least one of the current paths through at least one of said free layer structure and said pinned layer structure is greater than a half of a spin diffusion length in at least one of said free layer structure and said pinned layer and is smaller than 3 times as large as the spin diffusion length.

27. (Original) The CPP spin-valve element of claim 26, wherein the length of at least one of the current paths through at least one of said free layer structure and said pinned layer structure is greater than a spin diffusion length in at least one of said free layer structure and said pinned layer and is smaller than 2 times as large as the spin diffusion length.

28. (Previously Presented) A CPP spin-valve element formed on a substrate comprising:

a free layer structure including at least one ferromagnetic layer; and

a pinned layer structure including at least one ferromagnetic layer, the free layer is magnetically softer than the pinned layer;

wherein at least one CC-layer structure is incorporated therein, which is configured to separate the free and pinned layers and to allow an electric current to go through the confined current paths, the width of at least one of the confined current paths of said at least one CC-layer structure is greater than $t^{3/2}$ where t is the thickness of at least one of said free layer structure and pinned layer measured in nano-meters.

29. (Previously Presented) The CPP spin-valve element of claim 28, wherein the width of at least one of the confined current paths of said CC-layer structure is greater than two times $t^{3/2}$ where t is the thickness of at least one of said free layer structure and pinned layer measured in nano-meters.

30-41. Cancelled

42. (Previously Presented) The CPP spin-valve element of claim 19, wherein the average width of the confined current paths of said CC-layer structure is greater than $2.5t^{3/2}$ where t is the thickness of at least one of said free layer structure and said pinned layer measured in nano-meters.

43. Cancelled

44. (Previously Presented) The CPP spin-valve element of claim 19, wherein the average width of the confined current paths of said CC-layer structure is greater than $t^{3/2}$ where t is the thickness of at least one of said free layer structure and said pinned layer measured in nano-meters.

45. (Previously Presented) The CPP spin-valve element of claim 28, wherein the average width of the confined current paths of said CC-layer structure is greater than $t^{3/2}$ where t is the thickness of at least one of said free layer structure and said pinned layer measured in nano-meters.

46. (Previously Presented) The CPP spin-valve element of claim 29, wherein the average width of the confined current paths of said CC-layer structure is greater than two times $t^{3/2}$ where t is the thickness of at least one of said free layer structure and pinned layer measured in nano-meters.